

AMENDMENTS TO THE CLAIMS

Claim 1 (withdrawn): A method of forming a visual image having a specified shape on a surface of an optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk being capable of recording information on the surface thereof by the optical writing process, the method comprising the steps of:

checking a recording state of an optical disk to confirm that the optical disk is left unrecorded or is capable of additionally recording information;

placing the optical disk in a recording end state while an available area is left on the surface of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more; and

forming the visual image in the available area of the optical disk by using the optical writing process.

Claim 2 (currently amended): A method of forming a visual image having a specified shape on a surface of an optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk having a program area along the surface of the optical disk for recording information and being capable of recording information on the surface thereof in the program area by the optical writing process, the method comprising the steps of:

acquiring image formation information associated to a visual image to be formed;

forming the visual image on the surface in the program area of the optical disk based on the acquired image formation information by using the optical writing process; and

recording the image formation information together with the formed visual image on the surface in the program area of the same optical disk by using the optical writing process.

Claim 3 (currently amended): The method according to claim 2, further comprising the step of placing the optical disk in a recording end state after the image formation information is recorded so that the optical disk is made unable to additionally record information any more.

Claim 4 (original): The method according to claim 2, further comprising the step of placing the optical disk in a recording end state while leaving a reserved area on the surface of the optical disk so that the optical disk is made unable to additionally record information except for the reserved area, wherein the step of recording records the image formation information in the reserved area after the optical disk is placed in the recording end state.

Claim 5 (original): The method according to claim 2, wherein the step of recording records the image formation information containing start address information specifying a position of the surface of the optical disk to start the optical writing process for forming the visual image, stop address information specifying another position to stop the optical writing process for forming the visual image, and pattern information specifying a pattern of irradiating the laser beam during the optical writing process for forming the visual image.

Claim 6 (original): The method according to claim 2, wherein the step of recording records the image formation information containing image data which represents the visual image and which is recorded in a format readily readable from the optical disk for reproduction of the visual image on a display.

Claim 7 (original): The method according to claim 2, wherein the step of recording is capable of consecutively recording a plurality of image formation information corresponding to a plurality of visual images, such that each image formation information contains address information which specifies a start address of next image formation information or specifies a reserved area for next image formation information.

Claim 8 (original): The method according to claim 2, wherein the step of recording is capable of recording a plurality of image formation information corresponding to a plurality of visual images, so that the step of forming can successively form the plurality of the visual images on the surface of the optical disk without overlapping with each other based on the plurality of the recorded image formation information.

Claim 9 (previously presented): The method of claim 2 further comprising the steps of: copying the image formation information recorded in the optical disk to a duplicate optical disk by using the optical writing process; and
reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.

Claim 10 (withdrawn): A program designed for use in an optical recording apparatus which performs an optical writing process of irradiating a laser beam onto a surface of an optical disk to form pits for recording information, the program being executable by the optical recording apparatus to carry out a method of forming a visual image having a specified shape on a surface of an optical disk by using the optical writing process, wherein the method comprises the steps of:
checking a recording state of an optical disk to confirm that the optical disk is left unrecorded or is capable of additionally recording information;
placing the optical disk in a recording end state while an available area is left on the surface of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more; and
forming the visual image in the available area of the optical disk by using the optical writing process.

Claim 11 (currently amended): A machine readable medium comprising a program designed for use in an optical recording apparatus which performs an optical writing process of irradiating a laser beam onto a surface of an optical disk having a program area along said surface for recording information to form pits for recording information, the program being executable by the optical recording apparatus to carry out a method of forming a visual image having a specified shape on-a-surface in the program area of [[an]] the optical disk by using the optical writing process, wherein the method comprises the steps of:

acquiring image formation information associated to a visual image to be formed;
forming the visual image on the surface in the program area of the optical disk based on the acquired image formation information by using the optical writing process; and
recording the image formation information ~~together with the formed visual image on the surface in the program area~~ of the same optical disk by using the optical writing process.

Claim 12 (currently amended): The machine readable medium program according to claim 11, wherein the method further comprises the step of placing the optical disk in a recording end state after the image formation information is recorded so that the optical disk is made unable to additionally record information any more.

Claim 13 (currently amended): The machine readable medium program according to claim 11, wherein the method further comprises the step of placing the optical disk in a recording end state while leaving a reserved area on the surface of the optical disk so that the optical disk is made unable to additionally record information except for the reserved area, wherein the step of recording records the image formation information in the reserved area after the optical disk is placed in the recording end state.

Claim 14 (currently amended): The machine readable medium program according to claim 11, wherein the step of recording records the image formation information containing start address information specifying a position of the surface of the optical disk to start the optical writing process for forming the visual image, stop address information specifying another position to stop the optical writing process for forming the visual image, and pattern information specifying a pattern of irradiating the laser beam during the optical writing process for forming the visual image.

Claim 15 (currently amended): The machine readable medium program according to claim 11, wherein the step of recording records the image formation information containing image data which represents the visual image and which is recorded in a format readily readable from the optical disk for reproduction of the visual image on a display.

Claim 16 (currently amended): The machine readable medium program according to claim 11, wherein the step of recording is capable of consecutively recording a plurality of image formation information corresponding to a plurality of visual images, such that each image formation information contains address information which specifies a start address of next image formation information or specifies a reserved area for next image formation information.

Claim 17 (currently amended): The machine readable medium program according to 11, wherein the step of recording is capable of recording a plurality of image formation information corresponding to a plurality of visual images, so that the step of forming can successively form the plurality of the visual images on the surface of the optical disk without overlapping with each other based on the plurality of the recorded image formation information.

Claim 18 (currently amended): The machine readable medium program according to claim 11, wherein the method further comprises the steps of:

copying the image formation information recorded in the optical disk to a duplicate optical disk by using the optical writing process; and

reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.

Claim 19 (withdrawn): An optical recording apparatus comprising a mechanical drive for mounting and rotating an optical disk, an optical pickup for performing an optical writing process of irradiating a laser beam onto a surface of the optical disk to form pits for recording information, and a controller for controlling the mechanical drive and the optical pickup to carry out a method of forming a visual image having a specified shape on a surface of an optical disk by using the optical writing process, wherein the method comprises the steps of:

checking a recording state of an optical disk to confirm that the optical disk is left unrecorded or is capable of additionally recording information;

placing the optical disk in a recording end state while an available area is left on the surface of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more; and

forming the visual image in the available area of the optical disk by using the optical writing process.

Claim 20 (currently amended): An optical recording apparatus comprising a mechanical drive for mounting and rotating an optical disk, an optical pickup for performing an optical writing process of irradiating a laser beam onto a surface of the optical disk having a program area along said surface for recording information to form pits for recording information, and a controller for controlling the mechanical drive and the optical pickup to carry out a method of forming a visual image having a specified shape ~~on-a-surface~~ in the program area of [[an]] ~~the~~ optical disk by using the optical writing process, wherein the method comprises the steps of:

acquiring image formation information associated to a visual image to be formed;

forming the visual image ~~on the surface~~ in the program area of the optical disk based on the acquired image formation information by using the optical writing process; and

recording the image formation information ~~together with the formed visual image~~ ~~on the surface~~ in the program area of the same optical disk by using the optical writing process.

Claim 21 (previously presented): The apparatus of claim 20, wherein the method further comprises the steps of:

copying the image formation information recorded in the optical disk to a duplicate optical disk by using the optical writing process; and

reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.

Claim 22 (withdrawn): An optical disk produced by a method of forming a visual image having a specified shape on a surface of the optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk being capable of recording information on the surface thereof by the optical writing process, wherein the method comprises the steps of:

 checking a recording state of the optical disk to confirm that the optical disk is left unrecorded or is capable of additionally recording information;

 placing the optical disk in a recording end state while an available area is left on the surface of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more; and

 forming the visual image in the available area of the optical disk by using the optical writing process.

Claim 23 (currently amended): An optical disk having a surface and a program area along said surface for recording information and produced by a method of forming a visual image having a specified shape ~~on a surface in the program area~~ of the optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk being capable of recording information ~~on the surface in the program area~~ thereof by the optical writing process, wherein the method comprises the steps of:

 acquiring image formation information associated to a visual image to be formed;

 forming the visual image ~~on the surface in the program area~~ of the optical disk based on the acquired image formation information by using the optical writing process; and

 recording the image formation information ~~together with the formed visual image on the surface in the program area~~ of the optical disk by using the optical writing process.

Claim 24 (previously presented): The optical disk of claim 23, wherein the optical disk is used to produce a duplicate optical disk and wherein the method further comprises the steps of:
copying the image formation information recorded in the optical disk to the duplicate optical disk by using the optical writing process; and
reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.

Claim 25 (new): The method according to claim 2, further comprising the step of placing the optical disk in a recording end state while an available area is left in the program area of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more, wherein the visual image is formed in the available area of the optical disk by using the optical writing process.

Claim 26 (new): The method according to claim 2, further comprising the step of placing the optical disk in a recording end state while an available area is left in the program area of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more, wherein the visual image is formed in the available area of the optical disk by using the optical writing process, and the image formation information is recorded in the same available area of the program area by using the optical writing process.

Claim 27 (new): The method according to claim 2, wherein the recording step records the image formation information which represents a pattern of irradiating the laser beam on the basis of a polar coordinates system defined on the surface of the optical disk.

Claim 28 (new): The machine readable medium according to claim 11, wherein the method further comprises the step of placing the optical disk in a recording end state while an available area is left in the program area of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more, wherein the visual image is formed in the available area of the optical disk by using the optical writing process.

Claim 29 (new): The machine readable medium according to claim 11, wherein the method further comprises the step of placing the optical disk in a recording end state while an available area is left in the program area of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more, wherein the visual image is formed in the available area of the optical disk by using the optical writing process, and the image formation information is recorded in the same available area of the program area by using the optical writing process.

Claim 30 (new): The machine readable medium according to claim 11, wherein the recording step records the image formation information which represents a pattern of irradiating the laser beam on the basis of a polar coordinates system defined on the surface of the optical disk.

Claim 31 (new): A method of forming a visual image having a specified shape on a surface of an optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk allowing the recording of information thereon by the optical writing process, the method comprising the steps of:

acquiring image formation information associated to a visual image to be formed;

forming the visual image on the surface of the optical disk based on the acquired image formation information by using the optical writing process; and

recording the image formation information in the same optical disk by using the optical writing process after the visual image is formed on the surface of the optical disk.

Claim 32 (new): The method according to claim 31, further comprising the step of placing the optical disk in a recording end state after the image formation information is recorded so that the optical disk is made unable to additionally record information.

Claim 33 (new): The method according to claim 31, further comprising the step of placing the optical disk in a recording end state while leaving a reserved area on the surface of the optical disk so that the optical disk is made unable to additionally record information except for the reserved area, wherein the step of recording records the image formation information in the reserved area after the optical disk is placed in the recording end state.

Claim 34 (new): The method according to claim 31, wherein the step of recording records the image formation information containing start address information specifying a position of the surface of the optical disk to start the optical writing process for forming the visual image, stop address information specifying another position to stop the optical writing process for forming the visual image, and pattern information specifying a pattern of irradiating the laser beam during the optical writing process for forming the visual image.

Claim 35 (new): The method according to claim 31, wherein the step of recording records the image formation information containing image data which represents the visual image and which is recorded in a format readily readable from the optical disk for reproduction of the visual image on a display.

Claim 36 (new): The method according to claim 31, wherein the step of recording is capable of consecutively recording a plurality of image formation information corresponding to a plurality of visual images, such that each image formation information contains address information which specifies a start address of next image formation information or specifies a reserved area for next image formation information.

Claim 37 (new): The method according to claim 31, wherein the step of recording is capable of recording a plurality of image formation information corresponding to a plurality of visual images, so that the step of forming can successively form the plurality of the visual images on the surface of the optical disk without overlapping with each other based on the plurality of the recorded image formation information.

Claim 38 (new): The method of claim 31 further comprising the steps of:
copying the image formation information recorded in the optical disk to a duplicate optical disk by using the optical writing process; and
reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.

Claim 39 (new): The method according to claim 31, wherein the recording step records the image formation information on the same surface of the optical disk as the one on which visual image is formed.

Claim 40 (new): A machine readable medium comprising a program, designed for use in an optical recording apparatus, the program being executable by the optical recording apparatus to carry out a method of forming a visual image having a specified shape on a surface of an optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk allowing the recording of information thereon by the optical writing process, the method comprising the steps of:
acquiring image formation information associated to a visual image to be formed;
forming the visual image on the surface of the optical disk based on the acquired image formation information by using the optical writing process; and
recording the image formation information in the same optical disk by using the optical writing process after the visual image is formed on the surface of the optical disk.

Claim 41 (new): The machine readable medium according to claim 40, wherein the method further comprises the step of placing the optical disk in a recording end state after the image formation information is recorded so that the optical disk is made unable to additionally record information.

Claim 42 (new): The machine readable medium according to claim 40, wherein the method further comprises the step of placing the optical disk in a recording end state while leaving a reserved area on the surface of the optical disk so that the optical disk is made unable to additionally record information except for the reserved area, wherein the step of recording records the image formation information in the reserved area after the optical disk is placed in the recording end state.

Claim 43 (new): The machine readable medium according to claim 40, wherein the step of recording records the image formation information containing start address information specifying a position of the surface of the optical disk to start the optical writing process for forming the visual image, stop address information specifying another position to stop the optical writing process for forming the visual image, and pattern information specifying a pattern of irradiating the laser beam during the optical writing process for forming the visual image.

Claim 44 (new): The machine readable medium according to claim 40, wherein the step of recording records the image formation information containing image data which represents the visual image and which is recorded in a format readily readable from the optical disk for reproduction of the visual image on a display.

Claim 45 (new): The machine readable medium according to claim 40, wherein the step of recording is capable of consecutively recording a plurality of image formation information corresponding to a plurality of visual images, such that each image formation information contains address information which specifies a start address of next image formation information or specifies a reserved area for next image formation information.

Claim 46 (new): The machine readable medium according to claim 40, wherein the step of recording is capable of recording a plurality of image formation information corresponding to a plurality of visual images, so that the step of forming can successively form the plurality of the visual images on the surface of the optical disk without overlapping with each other based on the plurality of the recorded image formation information.

Claim 47 (new): The machine readable medium of claim 31 further comprising the steps of:

copying the image formation information recorded in the optical disk to a duplicate optical disk by using the optical writing process; and

reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.

Claim 48 (new): The machine readable medium according to claim 40, wherein the recording step records the image formation information on the same surface of the optical disk as the one on which visual image is formed.

Claim 49 (new): An optical recording apparatus comprising a mechanical drive for mounting and rotating an optical disk, an optical pickup for performing an optical writing process of irradiating a laser beam onto a surface of the optical disk to form pits for recording information, the optical disk allowing the recording of information thereon by the optical writing process, and a controller for controlling the mechanical drive and the optical pickup to carry out a method of forming a visual image having a specified shape on a surface of an optical disk, the method comprising the steps of:

acquiring image formation information associated to a visual image to be formed;

forming the visual image on the surface of the optical disk based on the acquired image formation information by using the optical writing process; and

recording the image formation information in the same optical disk by using the optical writing process after the visual image is formed on the surface of the optical disk.

Claim 50 (new): The optical recording apparatus of claim 49, wherein the method further comprises the steps of:

copying the image formation information recorded in the optical disk to a duplicate optical disk by using the optical writing process; and

reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.

Claim 51 (new): An optical disk produced by a method of forming a visual image having a specified shape on a surface of an optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk allowing the recording of information thereon by the optical writing process, the method comprising the steps of:

- acquiring image formation information associated to a visual image to be formed;
- forming the visual image on the surface of the optical disk based on the acquired image formation information by using the optical writing process; and
- recording the image formation information in the same optical disk by using the optical writing process after the visual image is formed on the surface of the optical disk.

Claim 52 (new): The optical disk of claim 51, wherein the method further comprises the steps of:

- copying the image formation information recorded in the optical disk to a duplicate optical disk by using the optical writing process; and
- reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.